

**In the Claims**

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2 1. (Currently Amended) An encoding system for determining position and  
3 position changes of a moving member, comprising:

4 a sequence of encoder marks forming incremental patterns and at least one  
5 index pattern, wherein two subsequent incremental patterns are indicative of an  
6 incremental position-change of the moving member and the index pattern is  
7 indicative of a reference position of the moving member;

8 a sensor arrangement viewing a section of the encoder-mark sequence, the  
9 length of which is greater than one position-change increment;

10 an analyzer arranged to analyze an encoder-mark pattern in the viewed  
11 section with regard to the incremental patterns and the index pattern and to  
12 generate, in response to a pattern match found, ~~at least one of an incremental-~~  
13 position-change signal and an index signal.

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15 2. (Original) The encoding system of claim 1, wherein the sensor  
16 arrangement comprises a plurality of sensor elements arranged to simultaneously  
17 detect a plurality of encoder marks in the section of the encoder-mark sequence.  
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19 3. (Original) The encoding system of claim 1, wherein the index pattern has  
20 a length, and the length of the viewed section corresponds to the length of the  
21 index pattern.  
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23 4. (Original) The encoding system of claim 1, wherein subsequent  
24 incremental patterns overlap.  
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2 5. (Original) The encoding system of claim 1, wherein the encoder marks  
3 are identical.

4  
5 6. (Original) The encoding system of claim 1, wherein the system is a linear  
6 or an angular encoding system.

7  
8 7. (Original) An encoding system for determining position and position  
9 changes of a moving member, comprising:

10 a row of encoder marks arranged along the moving member in a generally  
11 regular manner to provide incremental position-change information;

12 at least one index marking in the form of a predefined pattern of encoder  
13 marks which represents a disturbance of the regular encoder-mark arrangement;

14 a sensor arrangement viewing a section of the row of encoder marks and  
15 arranged to provide a viewed pattern of the encoder-mark section;

16 an analyzer arranged to analyze the viewed pattern to generate incremental-  
17 position-change signals on the basis of the encoder marks and an index signal in  
18 response to a detection of the predefined index mark pattern,

19 wherein the incremental-position-change signals are enabled to be  
20 generated also in that section of the encoder-mark row in which the regular en-  
21 coder-mark arrangement is disturbed by the index marking.

1           8. (Original) The encoding system of claim 7, wherein the sensor  
2 arrangement comprises a plurality of sensor elements arranged to simultaneously  
3 detect a plurality of encoder marks in the viewed encoder-mark section.

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5           9. (Original) The encoding system of claim 7, wherein the index marking  
6 has a length, and the length of the viewed encoder-mark section corresponds to the  
7 length of the index marking.

8  
9           10. (Original) The encoding system of claim 7, wherein the sensor  
10 arrangement is arranged to detect, in the viewed section, a multiplicity of encoder  
11 marks, so that the detected encoder marks carry redundant incremental position-  
12 change information at least in regions of regular encoder-mark arrangement,  
13 wherein the detection of the multiplicity of encoder marks enables the  
14 incremental-position-change signals to be generated also in that section of the  
15 encoder-mark row in which the regular encoder-mark arrangement is disturbed by  
16 the index marking.

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18           11. (Original) The encoding system of claim 7, wherein the encoder marks  
19 are equidistantly spaced in regions of regular encoder-mark arrangement.

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21           12. (Original) The encoding system of claim 7, wherein the encoder marks  
22 are identical.  
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1           13. (Currently Amended) The encoding system of ~~claim 1~~claim 7, wherein  
2 the system is a linear or an angular encoding system.

3  
4           14. (Original) An encoding system for determining position and position  
5 changes of a moving member, comprising:

6           a row of identical encoder marks forming incremental patterns and at least  
7 one index pattern, wherein two subsequent incremental patterns are indicative of  
8 an incremental position-change of the moving member and the index pattern is  
9 indicative of a reference position of the moving member;

10          a sensor arrangement detecting a pattern of a section of the encoder-mark  
11 row;

12          an analyzer arranged to analyze the detected encoder-mark pattern with  
13 regard to the incremental patterns and the index pattern and to generate, in  
14 response to an incremental-pattern match found, an incremental-position-change  
15 signal and, in response to an index-pattern match found, an index signal.

16  
17          15. (Original) The encoding system of claim 14, wherein the sensor  
18 arrangement comprises a plurality of sensor elements arranged to simultaneously  
19 detect a plurality of encoder marks in the section of the encoder-mark row.

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21          16. (Original) The encoding system of claim 14, wherein the index pattern  
22 has a length, and the length of the viewed section corresponds to the length of the  
23 index pattern.

1  
2 17. (Original) The encoding system of claim 14, wherein the sensor  
3 arrangement comprises a sensor element arranged to successively detect the  
4 encoder marks or groups of the encoder marks in the section of the encoder-mark  
5 row upon the movement of the moving member, wherein the encoding system is  
6 arranged to combine the successively detected encoder marks to form the detected  
7 encoder-mark pattern.

8  
9 18. (Original) The encoding system of claim 14, wherein subsequent  
10 incremental patterns overlap.

11  
12 19. (Original) The encoding system of claim 14, wherein the system is a  
13 linear or an angular encoding system.

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15 20. (Currently Amended) A printing device having an encoding system for  
16 determining position and position changes of a recording medium conveyor to  
17 determine the position of a recording medium placed on the conveyor, comprising:

18 a sequence of encoder marks forming incremental patterns and at least one  
19 index pattern, wherein two subsequent incremental patterns are indicative of an  
20 incremental position-change of the conveyor and the index pattern is indicative of  
21 a reference position of the conveyor;

22 a sensor arrangement viewing a section of the encoder-mark sequence, the  
23 length of which is greater than one position-change increment;

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1 an analyzer arranged to analyze an encoder-mark pattern in the viewed  
2 section with regard to the incremental patterns and the index pattern and to  
3 generate, in response to a pattern match found, ~~at least one of an incremental-~~  
4 position-change signal and an index signal.

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6 21. (Original) The printing device of claim 20, wherein the recording  
7 medium conveyor is a belt conveyor.

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9 22. (Original) The printing device of claim 20, wherein the encoder-mark  
10 sequence is an encoder-mark row arranged along the recording medium conveyor.

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12 23. (Original) The printing device of claim 20, wherein the printing device  
13 has a plurality of print stations arranged along the recording medium conveyor,  
14 and each print station is individually equipped with said sensor arrangement and  
15 analyzer.

16  
17 24. (Original) The printing device of claim 20, wherein the printing device  
18 is a page-wide ink-jet printer.

19  
20 25. (Original) A printing device having an encoding system for determining  
21 position and position changes of a recording medium conveyor to determine the  
22 position of a recording medium placed on the conveyor, comprising:

23 a row of encoder marks arranged along the conveyor in a generally regular  
24 manner to provide incremental position-change information;  
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1 at least one index marking in the form of a predefined pattern of encoder  
2 marks which represents a disturbance of the regular encoder-mark arrangement;

3 a sensor arrangement viewing a section of the row of encoder marks and  
4 arranged to provide a viewed pattern of the encoder-mark section;

5 an analyzer arranged to analyze the viewed pattern to generate incremental-  
6 position-change signals on the basis of the encoder marks and an index signal in  
7 response to a detection of the predefined index mark pattern,

8 wherein the incremental-position-change signals are enabled to be  
9 generated also in that section of the encoder-mark row in which the regular en-  
10 coder-mark arrangement is disturbed by the index marking.

11  
12 26. (Original) The printing device of claim 25, wherein the recording  
13 medium conveyor is a belt conveyor.

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15 27. (Original) The printing device of claim 25, wherein the printing device  
16 has a plurality of print stations arranged along the recording medium conveyor,  
17 and each print station is individually equipped with said sensor arrangement and  
18 analyzer.

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20 28. (Original) The printing device of claim 25, wherein the printing device  
21 is a page-wide ink-jet printer.

1           29. (Original) A printing device having an encoding system for determining  
2 position and position changes of a recording medium conveyor to determine the  
3 position of a recording medium placed on the conveyor, comprising:

4           a row of identical encoder marks forming incremental patterns and at least  
5 one index pattern, wherein two subsequent incremental patterns are indicative of  
6 an incremental position-change of the conveyor and the index pattern is indicative  
7 of a reference position of the conveyor;

8           a sensor arrangement detecting a pattern of a section of the encoder-mark  
9 row;

10          an analyzer arranged to analyze the detected encoder-mark pattern with  
11 regard to the incremental patterns and the index pattern and to generate, in  
12 response to an incremental-pattern match found, an incremental-position-change  
13 signal and, in response to an index-pattern match found, an index signal.

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15          30. (Original) The printing device of claim 29, wherein the recording  
16 medium conveyor is a belt conveyor.

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18          31. (Original) The printing device of claim 30, wherein the encoder-mark  
19 row is arranged along the recording medium conveyor.

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21          32. (Original) The printing device of claim 30, wherein the printing device  
22 has a plurality of print stations arranged along the recording medium conveyor,  
23 and each print station is individually equipped with said sensor arrangement and  
24 analyzer.  
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2 33. (Original) The printing device of claim 30, wherein the printing device  
3 is a page-wide ink-jet printer.  
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5 34. (Currently Amended) A method of determining position and position  
6 changes of a moving member using a sequence of encoder marks which forms  
7 incremental pat-terns and at least one index pattern, wherein two subsequent  
8 incremental patterns are indicative of an incremental position-change of the  
9 moving member and the index pattern is indicative of a reference position of the  
10 moving member, comprising the steps:

11 viewing a section of the encoder-mark sequence, the length of which is  
12 greater than one position-change increment;

13 analyzing a encoder-mark pattern in the viewed section with regard to the  
14 incremental patterns and the index pattern; and

15 generating, in response to a pattern match found, ~~at least one of an~~  
16 incremental-position-change signal and an index signal.  
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1           35. (Original) A method of determining position and position changes of a  
2 moving member using a row of encoder marks arranged along the moving member  
3 in a generally regular manner to provide incremental position-change information;  
4 at least one index marking in the form of a predefined pattern of encoder marks  
5 which represents a disturbance of the regular encoder-mark arrangement,  
6 comprising the steps:

7           viewing a section of the row of encoder marks;

8           providing a viewed pattern of the encoder-mark section;

9           analyzing the viewed pattern to generate incremental-position-change  
10 signals providing the incremental position-change information on the basis of the  
11 encoder marks and an index signal in response to a detection of the pre-defined  
12 index mark pattern,

13           wherein the incremental-position-change signals are enabled to be  
14 generated also in that section of the encoder-mark row in which the regular  
15 encoder-mark arrangement is disturbed by the index marking.